

CLAIMS

What is claimed is:

- 1 1. A method of performing data redundancy, said method comprising:
2 storing an object in an object storage device;
3 temporarily storing a duplicate of said object in a second object storage device;
4 converting said object into any of a grouped object Redundant Array of Independent
5 Disks (RAID) layout and an individual RAID layout as said object changes in size; and
6 discarding the duplicate object.
- 1 2. The method of claim 1, wherein said step of converting further comprises
2 determining which of said grouped object RAID layout or individual RAID layout to convert
3 said object into based on a size of the object being converted.
- 1 3. The method of claim 1, wherein said step of converting into a grouped object RAID
2 layout further comprises selecting a group based on whether said group comprises other
3 objects similarly sized to said object.
- 1 4. The method of claim 3, wherein the similarly sized objects comprise variably sized
2 objects.

1 5. The method of claim 3, further comprising recomputing a parity of said group to
2 include said object.

1 6. The method of claim 1, wherein said RAID layout comprises any of a RAID 5, a
2 RAID 6, and a striped RAID layout.

1 7. The method of claim 1, wherein said step of converting occurs when a predetermined
2 number objects have been duplicated.

1 8. The method of claim 1, wherein said step of converting occurs when said storage
2 devices reach a limit on storage space.

1 9. The method of claim 1, wherein said step of converting occurs when said object
2 remains dormant for a predetermined period of time.

1 10. The method of claim 1, wherein said step of converting to a grouped object RAID
2 layout further comprises forming a group of similarly sized objects in said grouped object
3 RAID layout.

1 11. The method of claim 10, wherein said similarly sized objects comprise variably sized
2 objects.

1 12. The method of claim 1, further comprising removing the converted object from said
2 grouped object RAID layout.

1 13. The method of claim 1, further comprising duplicating said converted object.

1 14. A method of performing data redundancy, said method comprising:
2 storing a variably sized object in a first object storage system;
3 mirroring said object;
4 temporarily storing the mirrored object in a second object storage system;
5 converting said object into any of a grouped object Redundant Array of Independent
6 Disks (RAID) layout and an individual RAID layout upon growth of said object; and
7 discarding the mirrored object.

1 15. The method of claim 14, wherein said step of converting further comprises
2 determining which of said grouped object RAID layout or individual RAID layout to convert
3 said object into based on a size of the object being converted.

1 16. The method of claim 14, wherein said step of converting into a grouped object RAID
2 layout further comprises selecting a group based on whether said group comprises other
3 objects similarly sized to said object.

1 17. The method of claim 16, wherein the similarly sized objects comprise variably sized

2 objects.

1 18. The method of claim 16, further comprising recomputing a parity of said group to
2 include said object.

1 19. The method of claim 14, wherein said RAID layout comprises any of a RAID 5, a
2 RAID 6, and a striped RAID layout.

1 20. The method of claim 14, wherein said step of converting occurs when a
2 predetermined number objects have been mirrored.

1 21. The method of claim 14, wherein said step of converting occurs when said storage
2 devices reach a limit on storage space.

1 22. The method of claim 14, wherein said step of converting occurs when said object
2 remains dormant for a predetermined period of time.

1 23. The method of claim 14, wherein said step of converting to a grouped object RAID
2 layout further comprises forming a group of similarly sized objects in said grouped object
3 RAID layout.

1 24. The method of claim 23, wherein said similarly sized objects comprise variably sized

2 objects.

1 25. The method of claim 14, further comprising removing the converted object from said
2 grouped object RAID layout.

1 26. The method of claim 14, further comprising duplicating said converted object.

1 27. A system for performing data redundancy comprising:
2 a set of object storage devices;
3 a variably sized object in a first object storage device;
4 a redundancy data management controller operable for duplicating said object;
5 a second object storage device operable for temporarily storing the duplicated object;
6 a data converter operable for converting said object into any of a grouped object
7 Redundant Array of Independent Disks (RAID) layout and an individual RAID layout said
8 object changes in size; and
9 a data purger operable for discarding the duplicated object.

1 28. The system of claim 27, wherein said data converter is operable for determining
2 which of said grouped object RAID layout or individual RAID layout to convert said object
3 into based on a size of the object being converted.

1 29. The system of claim 27, wherein said grouped object RAID layout is selected based

2 on determining whether a group comprises other objects similarly sized to said object.

1 30. The system of claim 29, wherein the similarly sized objects comprise variably sized
2 objects.

1 31. The system of claim 29, further comprising a recomputed parity of said group to
2 include said object.

1 32. The system of claim 27, wherein said RAID layout comprises any of a RAID 5, a
2 RAID 6, and a striped RAID layout.

1 33. The system of claim 27, wherein said data converter is triggered when a
2 predetermined number objects have been duplicated.

1 34. The system of claim 27, wherein said data converter is triggered when said storage
2 devices reach a limit on storage space.

1 35. The system of claim 27, wherein said data converter is triggered when said object
2 remains dormant for a predetermined period of time.

1 36. The system of claim 27, wherein said grouped object RAID layout further comprises
2 a group of similarly sized objects in said grouped object RAID layout.

1 37. The system of claim 36, wherein said similarly sized objects comprise variably sized
2 objects.

1 38. The system of claim 27, further comprising means for removing the converted object
2 from said grouped object RAID layout.

1 39. The system of claim 27, wherein said redundancy data management controller is
2 operable for duplicating said converted object.

1 40. A system for performing data redundancy comprising:
2 means for storing a variably sized object in a first object storage system;
3 means for mirroring said object;
4 means for temporarily storing the mirrored object in a second object storage system;
5 means for converting said object into any of a grouped object Redundant Array of
6 Independent Disks (RAID) layout and an individual RAID layout upon growth of said object;
7 and
8 means for discarding the mirrored object.